THE OBJECTIVE FORCE SOLDIER

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"Soldiers are the centerpiece of our formations."

GEN Eric K. Shinseki
Chief of Staff, U.S. Army

Introduction

Soldiers continue to be the Army's most important asset. The soldier is the foundation of Army transformation and will be the centerpiece of the Objective Force. To achieve the Objective Force vision, individual soldiers and small units must be provided unsurpassed leap-ahead capabilities. They must be seamlessly integrated into the Future Combat Systems (FCS) and digital battlefield. The ability to see first, act first, and finish decisively must be present at every echelon—down to the individual dismounted ground combatant. Accomplishing this will require a major technology investment in individual soldier equipment and effective requirements and acquisition management of the soldier as a system.

The Soldier As A System

The soldier system includes everything a soldier wears or carries on the battlefield. The need to manage individual soldier equipment requirements and acquisition as a system was first identified by an Army Science Board Summer Study in 1991. That need was again validated in a 2001 Summer Study. Historically, soldier system modernization has not kept pace with that of other systems such as tanks and aircraft.

Today's tanks and fighter aircraft are vastly more capable than those of World War II. However, today's infantry soldier is equipped and fights much the same way as the World War II soldier. Achieving the Objective Force vision will require state-of-the-art soldier systems that are effective across the spectrum of operations. To accomplish this, the Army has begun to manage soldier system requirements and acquisition as a system.

On the requirements side, the U.S. Army Training and Doctrine Command (TRADOC) established the soldier-as-a-system integration concept in November 2001. This integration concept consists of a management process, documented requirements, and soldier systems architecture. The integrated concept team (ICT) is composed of representatives from TRADOC schools and other Services and is chaired by the Commandant of the U.S. Army Infantry Center, Fort Benning, GA. At the working level, the TRADOC Systems Manager (TSM), Soldier and the Director of Combat Developments co-chair the soldier as a system ICT.

The soldier-as-a-system concept includes those items worn, carried, or consumed by soldiers. It also includes all items in the soldier's load and those items of equipment to accomplish unit missions (e.g., crew-served weapons and interunit radios). The ICT is working to validate the soldier-as-a-system concept and to identify immediate soldier needs and future soldier system operational capability requirements. The TRADOC ICT will address soldier system requirements across all areas of Doctrine, Training, Leader development, Organizations, People, and Facilities. Soldier-as-a-system requirements development will be an integrated effort to ensure connectivity, compatibility, modularity, and interoperability with other systems.

PEO, Soldier

On the acquisition side, Program Executive Office (PEO), Soldier was activated June 7, 2002, to provide centralized soldier system acquisition management. PEO, Soldier is the first organization with acquisition responsibility to develop, field, and sustain everything a soldier wears or carries. PEO, Soldier's mission is to arm and equip soldiers to dominate the full spectrum of peace and war, now and in the future. Developing and fielding an effective soldier system requires alignment, synchronization, and funding of multiple programs. PEO, Soldier manages 346 programs, organized under three project managers. Project Manager, Soldier Warrior consists of Product Manager, Land Warrior (LW) and Product Manager, Air Warrior. Project Manager, Soldier Weapons includes Product Manager, Individual Weapons and Product Manager, Crew-Served Weapons. Project Manager, Soldier Sensors and Equip-

Objective Force Warrior conceptual mock-up

ment consists of Product Manager, Multi-Spectrum Sensors and Product Manager, Clothing and Individual Equipment.

A key aspect of the PEO, Soldier-TRADOC soldier system partnership is a new focus on the immediate needs of soldiers deployed or preparing to deploy for real-world operations. An example of this is PEO, Soldier's Rapid Fielding Initiative (RFI), which recently fielded more than 20 equipment items to an entire brigade of the 82nd Airborne Division preparing to deploy to Afghanistan. (See the sidebar article on this page for more specific information on this initiative.)

Land Warrior And Air Warrior

Initial soldier system development focused on the dismounted infantryman. LW, the first soldier system, is a modular, integrated fighting system for infantry soldiers. State-of-the-art components and technologies are integrated into a lethal, survivable, mobile, and more aware soldier system. LW systems and components include a modular weapon system with thermal weapon sight, video camera gun sight, and multifunctional laser with digital compass; integrated headgear with helmet-mounted display and image intensifier; protective clothing and individual equipment; and individual soldier computer, radio, and Global Positioning System navigation system.

XM29 Integrated Airburst Weapon System

LW provides individual soldiers with secure voice and data communications that are reliable and will integrate with the Army Tactical Internet. LW Version 1.0, currently in testing, is the third significant upgrade to the system since 1998. Land Warrior improvements include the latest military and commercial technology developments and are based on lessons learned from rigorous experiments and realistic field exercises with real soldiers and small units.

LW Initial Capability will be fielded to the 75th Ranger Regiment beginning in 2004. LW will be fielded to the Army's Stryker Brigades and will include Stryker integration capabilities and other improvements. LW Advanced Capability will be fielded to the Objective Force.

Soldier system development for the helicopter crewman, Air Warrior, has completed developmental and operational testing and will begin fielding in 2004. Air Warrior is a new generation of integrated, mission-tailorable, combat-effective life support equipment designed to improve aircrew endurance, mobility, and performance. Air Warrior includes survival equipment, ballistic protection, and chemical and biological protection at reduced weight and bulk.

Lethality Enhancements

Several individual and crew-served weapon systems are being developed as lethality enhancements to the soldier system. The XM107 .50 caliber sniper system was already fielded to deploying units in response to immediate needs in the Afghanistan theater. The XM29 Integrated Airburst Weapon System will provide a precision airburst capability enabling accurate, lethal engagement of targets in defilade, behind walls, and in rooms. The XM29 successfully completed an advanced technology demonstration in 1999. The XM8 is a derivative weapon system of the XM29. It is a lightweight 5.56mm weapon that will improve performance by integrating rails and some sighting functions into the weapon. Commanders will have the

PEO, Soldier Rapid Fielding Initiative

The PEO, Soldier Rapid Fielding Initiative (RFI), which is briefly cited in the article that begins on Page 12, is an innovative acquisition process executed in partnership with the U.S. Army Training and Doctrine Command (TRADOC) and the U.S. Army Forces Command (FORSCOM) units. The RFI objective is to respond rapidly to the immediate needs of soldiers deployed or preparing to deploy for real-world operations.

How rapidly? For example, from Nov. 13-15, 2002, PEO, Soldier issued special individual equipment to an Afghanistan-bound Brigade of the 82nd Airborne Division. Needs were determined by the XVIII Airborne Corps and the U.S. Army Infantry Center based on lessons learned from units conducting operations in Afghanistan. The requirements-to-fielding process that normally takes years was accomplished in a matter of weeks.

Fielded equipment included the XM107 .50 caliber sniper weapon, thermal weapons sights, laser white light pointer, the Viper binocular laser rangefinder, improved rifle and machine gun optics, improved cold weather clothing, improved boots, advanced combat helmet, and M-Gator all terrain vehicles.

Coordination with TRADOC and unit commanders is ongoing, ensuring that unit- and mission-specific requirements will be met. The procurement and fielding methodology are designed to minimize the impact on the unit by working closely with unit staffs to ensure multiple items are fielded quickly and in a coordinated manner. This requires close, almost daily communication between the PEO and Army Staff (principally G-3, G-4, and G-8), along with TRADOC, FORSCOM, and the gaining Corps and Division.

Based on the success of the initial brigade RFI fielding, subsequent RFIs are planned for state-of-the-art soldier equipment using both available military gear and commercial off-the-shelf items. This Rapid Fielding Initiative shows how acquisition managers can use innovative requirements development and acquisition procedures to respond immediately to the needs of soldiers engaged in real-world operations.

ability to mission-tailor via changeable barrels (short, medium, and long). Early working prototypes of the XM8 have already been fired. The XM307 is a lightweight Advanced Crew-Served Weapon configured in both the .50 caliber family of ammunition and a new 25mm family. The 25mm family is capable of firing precision airburst and light armor penetrating munitions out to 2,000 meters.

OFW S&T Initiative

Objective Force Warrior (OFW) is the Army's primary science and technology (S&T) initiative to develop and demonstrate soldier system technology for the Objective Force. OFW technology developments will be included in the LW Advanced Capability System. The initiative will result in technologies that will enable unsurpassed, leap-ahead capability enhancements for Objective Force soldier systems. An integrated, system-of-systems approach is being employed focusing on individual warriors and small units.

The OFW goal is to create an overwhelmingly lethal, fully integrated individual combat system, including weapon, head-to-toe individual protection, netted communications with links to sensors and FCS command and control systems, soldier-worn power sources, and enhanced human performance. Technology focus areas include weight reduction, power enhancement, sensory enhancement, full-spectrum individual protection, collaborative and networked situation understanding, robotics, direct and indirect fires effects, and embedded training and mission rehearsal capabilities.

The OF Soldier

We all desire OF soldiers to possess unsurpassed, revolutionary capability enhancements in situational awareness, lethality, survivability, and other areas. Soldiers must have overmatch capability against any potential adversary across the spectrum of operations. They will be completely integrated within the FCS unit of action.

LW, the first soldier system

The OF soldier and small unit will operate with unprecedented situational awareness and understanding, will be linked to improved ground and air sensors, and will be seamlessly integrated with FCS communications and data systems. Shared situational awareness and decision support aids will enable small dismounted units to develop the situation out of physical or visual enemy contact and maneuver to positions of advantage. It is hoped that surprise contact and meeting engagements will be a thing of the past.

The lethality component of the OF soldier will be based on a family of lightweight weapons with advanced fire control and synchronized direct and indirect fires from the FCS. OF soldiers and small units will be capable of massing effects from a variety of organic and supporting weapons. They will also be capable of nonlethal engagement.

The OF soldier system will provide full-spectrum ballistic; environmental; and nuclear, biological, and chemical (NBC) protection integrated in an advanced combat uniform or ensemble. The ensemble will include advanced camouflage and signature reduction as well as physiological monitoring and medical self-aid capabilities.

Weight reduction and power enhancement are central features of OF soldier system development. The soldier's fighting load will weigh 40-50 pounds, compared to the 90-pound-plus loads carried by soldiers today. Developing and emerging power-source technologies are being exploited to provide lightweight, wearable, long-duration power sources. The OF soldier system will be capable of autonomous operation for 72 hours.

XM307 machine gun Advanced Crew-Served Weapon

The system will also include embedded training and on-the-move virtual planning and rehearsal capabilities. This will enable en route mission planning and rehearsal and quick response to mission changes and intelligence updates.

Conclusion

Soldier system capabilities will be the foundation of successful Army transformation. Achieving this will require comprehensive, effective soldier system requirements determination and acquisition management. All PEO, Soldier organizations will be part of a synchronized effort to produce the world's best soldier system. Team Soldier will support Army transformation with effective, state-of-the-art soldier systems that will be the centerpiece of the Objective Force.

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